April 6, 1927

My dear Doctor Cunningham:

Thanks very much for your letter of April 2nd. That will be very fine. We shall be glad to have our paper come as the discussion to the chemical work and should like to have a chance to give lantern slides. Our work has culminated in the last two or three weeks to some very interesting conclusions. The proteid fraction gives a remarkable stimulus to endothelium and we have some of the most beautiful preparations of lymph glands I have ever seen, with every single endothelial cell in the lymphatic sinuses and every single endothelial cell in the blood vessels loaded with fragments of red cells following intestinal hemorrhages. Beside the stimulus to endothelial activity, there are multiple hemorrhages everywhere and extreme degeneration of the liver. The monocyte curves will be a very beautiful confirmation of your work on the correlation between monocytes and degenerations of the liver. We shall not try to analyze that point at all, but the curves show an increase in monocytes about every fourth day, very rhythmically, not at all like the curve in tuberculosis.

On the other hand, the fat fraction stimulates the epithelioid cells and gives one a most gorgeous display of them everywhere. They are loaded with fat, which stains with the Ziehl-Neelson technique, giving you a preparation which I believe identifies every single epithelioid cell. The contrast between the lymph glands with these two different preparations is a complete confirmation of the clasmatocyte-monocyte idea. Moreover, we have been able to show that the epithelioid cell tends toward the acid reaction, its range of color being from salmon to carmine; while the color range of the clasmatocyte is, as you know, from red to yellow. In other words, the inability of the epithelioid cell to deal with fat is probably tied up with the fact that it does not develop any alkaline reaction. All this I think we will be able to demonstrate quite conclusively.

The preparations give very interesting analyses of the structure of the lymph gland. The endothelium is potentially complete in the sinuses, but under stimulus endothelial cells drop off here and there, leaving places where the lymphocytes pour out into the sinuses. It is entirely clear that the monocyte comes not from the endothelium but from the reticulum. The preparations demonstrate that Aschoff's concept of a reticulo-endothelial system is false, because there is a real functional separation between the two.

Your last paragraph is certainly impressive and you will have a wonderful time writing it all up. I am going to give the essentials of the reaction to the fat and proteid at the meetings of the National Academy in Washington during April, and then again in the discussion at the National Tuberculosis Association.

Very cordially yours,

Dr. R. S. Cunningham
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